**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Constant Velocity Model Review**

1. Consider the position vs. time graph at right.



a. Determine the average velocity of the object.

b. Write a mathematical model (i.e., algebraic representation) to describe the motion of the object.

2. Shown at right is a velocity vs. time graph for an object.



a. Describe the motion of the object.

b. Draw the corresponding position vs. time graph. Number the x - axis.



c. How far did the object travel in the interval t =1s to t =2s?

d. What is the **total** displacement from 0 to 5 seconds? Explain how you got the answer.

3. Johnny drives to Phoenix, AZ (1920 miles) in 32 hours. He returns to Pittsburgh by the same route in the same amount of time.

a. Determine his average speed.

b. Determine his average velocity.

1. Compare these two values and explain any differences.

4. Consider the v vs. t graph below.



a. Describe the behavior of the object depicted in the graph.

b. Draw a motion map that models the behavior of the object.

1. A race car travels at a speed of 95 m/s. How far does it travel in 12.5 s? Use the appropriate mathematical model and show how units cancel.
2. Sketch a position time and velocity time graph for the following motion map. What written description would accompany the map. (BOTH objects start at the same time)

# t **(s)**

# x

(m)

**A**

**B**

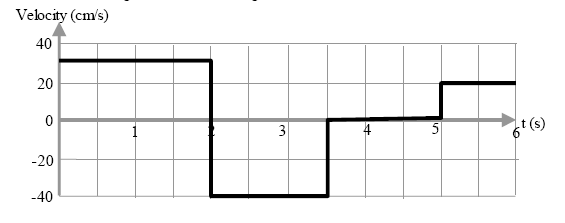
**X**

# t **(s)**

# v

()

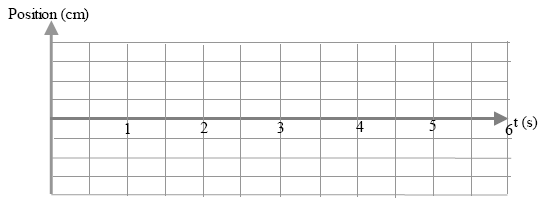
1. The graph below shows the velocity vs. time graph of a roller skater robot Barbie who started 25 centimeters from her dollhouse (the origin).



1. Determine the change in position from 5 to 6 seconds. Clearly show your work using units.

Delineate on the graph how one could display the displacement.

1. Determine the change in position from 2 to 3.5 seconds. Clearly show your work using units. Delineate on the graph how one could display the displacement.
2. Using your skills, draw a quantitative position time graph for the motion shown in the velocity time graph above (yes, this means numbers are needed). Be sure to reread the situation. (HINT: is the initial position important).



1. Draw a motion map of this situation.